



CHALAPATHI COLLEGE OF PHARMACY

(Affiliated to Acharya Nagarjuna University|Approved by PCI|
Recognized by Dept. Of Technical Education, Govt. Of A.P)

INNOVATIVE TEACHING METHODS

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Virtual Analytical Lab Simulations

Use platforms like **Labster**, **PhET**, or custom-built AR/VR tools to simulate analytical techniques (e.g., UV-Vis spectroscopy, HPLC, potentiometry).

Students can virtually perform experiments, interpret spectra, and learn safety procedures before entering the real lab.

Instrument Handling Workshops (“Instrument Bootcamps”)

Organize hands-on mini-workshops on each analytical instrument (IR, NMR, HPLC, GC).

Let students **record and analyze real chromatography or spectra** from given samples.

Problem-Based Learning (PBL) with Real Samples

Present real-life analytical challenges: e.g., “Determine the purity of a marketed tablet using UV spectrophotometry.”

Students work in small groups to plan, execute, and justify their analytical methods.

Data Interpretation Hackathons

Host short competitions where students are given raw analytical data (e.g., HPLC peaks, titration curves) and must interpret it to identify unknowns. Encourages critical thinking and teamwork.

Quality Control (QC) Role-Play

Simulate a pharmaceutical QC department — assign students as analysts, QA officers, or auditors.

Students prepare mock **SOPs**, **validation reports**, and **audit responses**.

Molecule Modeling with AR/3D Tools

Use apps like **MolView**, Chem-sketch, or **Augment AR** for 3D visualization of drug molecules.

Students can rotate, visualize bonds, and study stereo chemistry interactively.